

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s): Mark Roby

Examiner: Gillespie, Benjamin

Serial No.: 10/533,041

Group: Art Unit: 1796

Filed: December 14, 2005

Dated: November 13, 2009

For: **BIOABSORBABLE ADHESIVE COMPOUNDS**

**Mail Stop Appeal Brief – Patents**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Va. 22313-1450

***Filed Via EFS-Web***  
**Confirmation No.: 5860**

**REPLY BRIEF**

Sir:

This Reply Brief is in response to the Examiner's Answer dated September 15, 2009 in the above-identified patent application.

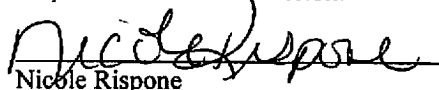
As set forth below, it is respectfully submitted that the references cited by the Examiner are not sufficient to establish a *prima facie* case of obviousness. See MPEP §2142.

---

**CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. §1.8(a)**

I hereby certify that this correspondence is being transmitted on the date below with the United States Patent and Trademark Office, PO Box 1450, Alexandria, VA 22313-1450, via electronic submission.

Dated: November 13, 2009

  
Nicole Risponse

I. Claims 1-6, 8-9, 15-18, 20-22, and 24

In the Examiner's Answer, while the Examiner points to a ratio of NCO:OH as suggesting the presence of unreacted diisocyanate monomer, the Examiner admits that nowhere does English state that its reaction system contains isocyanate-terminated prepolymers and additional diisocyanate monomer. The Examiner also admits that English fails to teach a polyurethane system that is a mixture of bioabsorbable di- and tri- functional polyesters. In an attempt to overcome the deficiencies of English, the Examiner asserts that it would be prima facie obvious to combine two separate compositions in order to form a third composition for the same purpose.

However, as previously noted, nowhere does English disclose or suggest the use of a three component system including a bioabsorbable oligomeric compound that is end-capped with an aromatic diisocyanate, a trifunctional compound that is end-capped with an aromatic diisocyanate, and an aromatic diisocyanate, as recited in claim 1. English specifically states "[t]he adhesive of the present invention can be a single-component or a two-component system" (column 3, lines 37-38.) Nowhere does English disclose or suggest the recited three component system. Thus, English cannot render claim 1 obvious, nor claims 2-6 and 8-9, which depend directly or indirectly from claim 1 and incorporate all of its limitations therein.

II. Claim 23

In the Examiner's Answer, the Examiner admits that English fails to disclose the cure time of claim 23. The Examiner further admits that Bennett notes the importance of the selection of diisocyanate, and that certain aromatic diisocyanates should not be employed due to toxicity concerns. Nevertheless, the Examiner maintains it would have been obvious to use the cross-linking parameters of Bennett in the composition of English.

Bennett discloses an adhesive for hard tissues that includes lysine-based isocyanate end-capped absorbable star polymers, which cross-link with each other. Nowhere does Bennett disclose the method of claim 23 or the composition used therein. There is no suggestion or motivation to combine the cross-linking parameters of Bennett, used for end-capped star polymers, to the one or two-step reaction of English, and expect a comparable reaction time. Moreover, English in view of Bennett would not result in the method of claim 23. Finally, claim 23 depends from claim 17, which depends from claim 1 and incorporates all the limitations of claim 1 therein. Therefore, for the same reasons claim 1 is not obvious, claim 23 is not obvious.

III. Claims 1-9, 13-22 and 24

In the Examiner's Answer, the Examiner admits that Lipatova teaches neither a bioabsorbable oligomeric compound end-capped with an aromatic diisocyanate nor a trifunctional compound end-capped with an aromatic diisocyanate.

English does not remedy the deficiencies of Lipatova. The Examiner argues that it would have been obvious to utilize the polyesters of English in Lipatova since both teach bioabsorbable tissue adhesives based on a polyester backbone. However, this combination would not result in the recited combination of a bioabsorbable oligomeric compound that is end-capped with an aromatic diisocyanate; a tri-functional compound end-capped with an aromatic diisocyanate; and an aromatic diisocyanate.

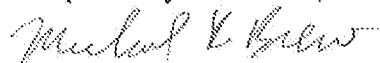
Ueyanagi fails to remedy the deficiencies of Lipatova and/or English. While Ueyanagi discloses processes for preparing modified aliphatic, alicyclic, or araliphatic organic polyisocyanates, which include prepolymers that may be dimers, trimers, tetramers, pentamers, or mixtures thereof, its processes include heating a polyisocyanate having at least two isocyanate groups in the presence of a diisocyanate monomer to form the modified polyisocyanate.

Nowhere is there any teaching or suggestion of a composition including the three components recited in claims 1, 19, and 20, namely, a bioabsorbable oligomeric compound that is end-capped with an aromatic diisocyanate, a trifunctional compound that is end-capped with an aromatic diisocyanate, and an aromatic diisocyanate. Moreover, the compositions of Ueyanagi are utilized as coating materials, non-yellowing foams, and non-yellowing adhesives (see, e.g., Ueyanagi at column 3, lines 17-25). There is no suggestion in Ueyanagi of the recited bioabsorbable compositions. Clearly, the Examiner has engaged in impermissible hindsight in citing Ueyanagi's non-yellowing foams as a basis to render obvious the recited bioabsorbable compositions. Thus, at least for the foregoing reasons, neither Lipatova, nor English, nor Ueyanagi, taken alone or in any combination, render any of the composition claims obvious, including the compositions of claims 1-9, and 13-22, and 24.

#### IV. Conclusion

In view of the foregoing, Appellants submit that independent claims 1, 19, and 20 are not rendered obvious by any of the cited references, whether taken alone or in any combination. Claims 2-9, 13-18, 21-22, and 24 depend, either directly or indirectly, from claim 1 and incorporate all of its limitations therein. Therefore, it is respectfully submitted that claims 1-9 and 13-24, are in condition for allowance.

Respectfully submitted,



Michael R. Brew  
Reg. No. 43,513  
Attorney for Applicants

**CARTER, DELUCA, FARRELL & SCHMIDT, LLP**  
445 Broad Hollow Road - Suite 420  
Melville, New York 11747  
Phone: (631) 501-5700  
Fax: (631) 501-3526  
MRB/nr